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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/955,979

09/20/2001

Jang Jin Yoo

041501-5452

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08/27/2002

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 08/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/955,979

Applicant(s)

YOO ET AL.

Examiner

Prasad R Akkapeddi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Response to Amendment*

Applicant's amendment dated 06/06/2002 has been received and entered.

### *Response to Arguments*

1. Applicant's arguments filed 06/06/2002 have been fully considered but they are not persuasive. The original rejection as stated in Office Action dated 03/07/2002 are still valid. Following is the response by the examiner to the applicant's arguments.
2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Rho et al article cited by the Applicant in view of Woo et al (U.S. Patent No. 6,067,140).

(a) Applicant's argument No. 1: Page 7, Paragraph 3 and 4: Contrary to Woo, the boundary regions of the present invention are formed by the electric field induced by the slit pattern. Therefore, although Woo discloses a metal layer 100 formed between the neighboring domains that prevents light leakage, the boundary regions of the domains are formed by the alignment layers having different directions, and not by the electric field induced by the slit pattern as in the present invention.

Accordingly, Applicant respectfully submit that there is no motivation to combine Rho in view of Woo to teach, or fairly suggest, a liquid crystal display device wherein the boundary regions of the domains are formed by the electric field induced by the slit pattern

Examiner's response to argument No. 1: Contrary to the above argument, Rho in the abstract teaches that the LCD is made of a glass pair with one substrate having a common electrode and the other with pixel electrodes is slit patterned (Abstract, lines 2-5). Then Rho goes on to teach that the (slit) pattern induces a component of the electric field (abstract, line 6), as claimed by the applicant. As originally cited, Rho does not teach the use of light shield layer below the first electrode. Woo on the other hand teaches the use of a light-shield layer (130) which is located below the middle portion of the first electrode (121).

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In (Col 1, lines 66-67 and Col 2, lines 1-2), Woo teaches the use of an opaque metal layer for shielding the light (light-shielding layer) entering the boundary region between the domains in each pixel to improve the image quality. Besides the use of light shielding layer to prevent light leakage into the device is a common practice as taught by several inventors including Woo. Therefore, there is a motivation to combine Rho in view of Woo to teach a liquid crystal display wherein the boundary regions of the domains are formed by the electric field induced by the slit pattern.

4. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

(b) Applicant's argument No. 2: Page 8, paragraph 4: As discussed above, the boundary regions of the present invention are formed by the electric field induced by the slit pattern, contrary to Woo wherein the boundary regions are formed by alignment layers. Therefore, although Woo discloses a metal layer 100 formed between the neighboring domains that prevents light leakage, the boundary regions of the domains are formed by the alignment layers having different directions, and not by the electric field induced by the slit pattern as in the present invention. Thus, Applicant's respectfully submits that neither Rho nor

Woo taken either singularly or combined teach or fairly suggest the claimed features of newly amended claim 4.

Examiner's response to argument No. 2: Please see the response to argument No.1. Since, the slit pattern is formed in the substrate having pixel electrodes of Rho, the electric field is induced by these slit patterns and not by the domains formed by the alignment layers. So, this examiner respectfully submits that the teachings of Rho alone are enough to suggest the claimed features, even as amended.

***Response to Amended Claims***

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rho et al article cited by the Applicant in view of Woo et al (U.S. Patent No. 6,067,140).

As to claim 1 (as amended): In additions to the teachings of Rho as cited in the original office action, Woo discloses a liquid crystal display device comprising: a first electrode (121) on a first substrate (101) having a plurality of slit patterns (121), a second electrode (122) on a second substrate (102), a liquid crystal (125) between the first and second substrates, the liquid crystal having

different alignment directions by each slit pattern (Fig. 2B) and at least one light-shielding layer (109) below each slit pattern. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the teachings of Woo to use an opaque metal layer for shielding the light (light-shielding layer) entering the boundary region between the domains in each pixel to improve the image quality. . Besides the use of light shielding layer to prevent light leakage into the device is a common practice as taught by several inventors including Woo.

Claim 3: Cancelled by the applicant.

As to claim 4 (as amended): In addition to the teachings of Rho as originally cited, Woo discloses in (Fig 2B), a liquid crystal display device comprising: a first electrode (121) on a first substrate (101) having a plurality of slit patterns (121), a second electrode (122) on a second substrate (102), a liquid crystal (125) between the first and second substrates, the liquid crystal having different alignment directions by each slit pattern (Fig. 2B) and one light-shielding layer (130) below the first electrode (121) and another light shielding layer (109) below the slit patterns. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the teachings of Woo to use an opaque metal layer for shielding the light (light-shielding layer) entering the boundary region between the domains in each pixel to improve the image quality.

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As to claim 8 (as amended): Woo discloses a method of manufacturing the above mentioned liquid crystal display device that includes all the limitations as claimed by the applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on 703-308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.



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August 23, 2002



William L. Sikes  
Supervisory Patent Examiner  
Technology Center 2800